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9 July 1957

MEMORANDUM FOR THE DIRECTOR OF CENTRAL INTELLIGENCE

FROM: ELINT Staff Officer

SUBJECT: Organization for Exploitation of Advanced Technology
in Support of Critical Intelligence Problems

1. My departure from the Agency impels me to go back and review about 15 years involvement with the problem of scientific and technical intelligence, with particular emphasis on electronics as a factor in key national security problems and to make some recommendations concerning the needs of the future in these fields.

2. In the long-term perspective of science and related scientific intelligence since the beginning of World War II, the following points should be borne in mind. The wartime developments in electronics and the application of nuclear energy were the most important scientific contributions to the winning of the war. From the end of the War until the hydrogen reaction was proven by the AEC and until August 1953 when the Soviets first demonstrated their capability to explode a fusion device, this field merited first priority, both in research and development and intelligence with respect to research and development. Electronics, particularly as related to long range navigation and bombing systems and to the research and development of missiles, ran a close second.

3. Once the Soviets demonstrated their capability to produce the reactions which are essential to the production of multi-megaton weapons, the key question became the development of delivery systems, first manned aircraft systems and then missile systems. Electronics became the single most critical technology involved in both systems.

4. The fact that our opponents in the international game of science recognize the importance of electronics much better than we is indicated by a statement made by A. N. Nesneyanov, President of the Academy of Sciences, USSR at the general meeting of the Academy on 26 December 1956. He stated, "The most important of the technical sciences, and that which requires first priority development, is radio engineering and electronics." He also said, "...as a whole, in the field of radio electronics we lag considerably behind the leading capitalist countries, especially in the realm of research which opens up new possibilities for engineering."

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5. During the War, there was little American scientific-technical intelligence activity worthy of the name carried on within the intelligence organizations of the Army and Navy. American scientific-technical intelligence was largely initiated and guided by the organizations that were consumers of this critical information, i.e., the Manhattan Project, certain divisions of OSRD and the Technical Services or Bureaus of the Army and the Navy. The people in OSRD and the Services who made this effort a success during the War were almost all engineers and scientists from industry and academic life (those in the Services being Reserve Officers) who were managing programs concerned with the development and application of new weapons. The effort was well coordinated through the Committees of the Communications Board under the Joint Chiefs and various informal Service-OSRD Committees. With the end of the War and the return of most of these technical people to civil pursuits, the effort collapsed.

6. Out of the shambles of late 1945 and early 1946 came the Joint Research and Development Board and in early 1947 the Scientific Advisors to the Board reviewed the situation of scientific and technical intelligence and made it their first priority for attention. This finding was endorsed by the policy group advising the Chairmen of the Board (General Norstad and Admiral Sherman). An arrangement was then made with the Director of the Central Intelligence Group, General Vandenberg, under which CIG was to establish a group to provide the Board with scientific intelligence.

7. Today, there is a tremendous effort in scientific and technical intelligence by many of the members of the intelligence community. In the field of ELINT, the Services and the Agency are operating an extensive intelligence collection program, a major coordinating mechanism and a sizeable processing center (to which we are all contributing) at a very large cost to the Government. The efficiency and results, in my opinion, judged against our war-time accomplishments [redacted] are pitiful.

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8. The reason for the generally poor performance is that the United States lacks an effective mechanism for coordinating the conduct of scientific and technical intelligence operations, both in terms of scientific intelligence collection and production, and for the systematic development and application of new scientific and technical methods to general intelligence collection and production problems.

9. The Agency, as presently organized, suffers from the same lack in that there are several separate subdivisions concerned with

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research and development, with the application of new methods and equipments, and the efforts of many co-equal and independent organizations must be coordinated if an effective program is to be launched in any field.

10. The exception to this general situation in both the community and the Agency has been the Agency performance on a recent major project in which the best technical brains of the U.S. were brought to bear under a single, purposeful, effectively managed organization. This activity has had plenty of elbow room to exploit the most advanced technology in all relevant fields. Under this project the Agency in less than 18 months developed an intelligence collection system which has been of inestimable value to the community. The secret of the success of the project is in the unity and freedom of the command and in the very close coupling between three major areas -- research and development, operations, and the consumer requirements -- with the most candid interchange between the three in order that the development of capabilities can exploit the latest in technology in direct response to stated consumer needs. Then operational capabilities and opportunities can be adjusted against requirements and new research and development on a continuing basis.

11. The potential of science and technology as an aid to intelligence operations required to meet the highest priority of national intelligence objectives can not be overestimated, and with arms inspection or other possible major changes in the situation of East versus West, continuing knowledge on the part of U.S. planners of the technological capabilities and plans of the Soviet orbit continues to increase in importance.

12. The Agency can make a unique contribution to the application of advanced technology to collecting the vital information needed to produce this intelligence. To accomplish this, however, the Agency needs to establish some sort of continuing single organization which can bring together the three key areas of intelligence activity aforementioned; i.e., requirements, research and development, and operations. This whole effort should then be supported by a continuing operations research organization (not unlike those now considered essential by the Army, Navy, Air Force and the Secretary of Defense) to apply the latest in operations analysis and research techniques to the problems that baffle us in intelligence.

13. Such an over-all organization should have wide latitude to exploit new methods such as advanced ELINT, communications

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intelligence, photographic, [redacted]
[redacted] systems needed to maintain surveillance of Soviet programs such as the IRBM and ICBM missile systems, the air defense system, etc.

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14. An organization within the Agency to accomplish this challenging mission cannot be established as an appendage to DD/P, DD/I, or DD/S. Rather it must be an independent continuing operation similar to the AQUATONE project which has demonstrated anew practices proven by the Manhattan District, our major electronics projects, and most of our scientific intelligence projects during World War II.

15. Such an organization within the Agency should be headed by a Deputy Director for possibly "New Intelligence Systems." He should be either a top scientist or engineer or someone like the present Special Assistant for Policy and Coordination who understands these matters well and can be assisted by a Deputy who has the scientific and technical qualifications and is responsible for research and development and technical planning. The organization should include those parts of the current DD/I, DD/P and DD/S functions which deal with scientific-technical requirements, research and development and operations in technical intelligence collection methods.

16. The survival of the West may well rest on the Agency's ability to establish such a program and see it through to success.

(Signed)

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ELINT Staff Officer

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